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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,215	02/15/2002	Norman Szalony	10541-1273	3067

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EXAMINER

TO, TOAN C

ART UNIT	PAPER NUMBER
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3616

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/077,215

Applicant(s)

SZALONY ET AL.

Examiner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Recitation "substantially steer" in claim 2 is unclear.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Fletcher et al (U.S. 5,903,965).

Fletcher et al discloses a shaft to transfer torque in a vehicle with the following: a first member (22) having internal splines (22b); a second member (24) having external splines (24b) engagable with the internal splines (22b) to allow telescopic movement between the first member (22) and the second member (24) and to transfer torque between the first member and the second member; the external splines (24b) having a coating (see column 4, lines 9-10) to reduce friction during the telescopic movement.

As to claim 3, Fletcher et al discloses a shaft to transfer torque in a vehicle with the following: wherein the coating is nylon (see column 4, lines 9-10).

As to claim 6, Fletcher et al discloses a shaft to transfer torque in a vehicle with the following: wherein the external spline further includes an isotropic surface finish (after finishing coating the external spline 24b by nylon material, the surface finish of the external become smooth to reduce friction, therefore, smooth surface finish is considered to correspond with isotropic surface finish).

5. Claims 1, 2-3 are rejected under 35 U.S.C. 102(b) as being anticipated by McClanahan (U.S. 5,720,102).

McClanahan discloses a shaft to transfer torque in a vehicle with the following: a first member (14) having internal splines (26); a second member (12) having external splines (24) engagable with the internal splines (26) to allow telescopic movement between the first member (14) and the second member (12) and to transfer torque between the first member and the second member; the external splines (24) having a coating (30) to reduce friction during the telescopic movement.

As to claims 2-3, McClanahan discloses a shaft to transfer torque in a vehicle with the following: wherein the first member (14) and the second member (12) are made by steel (see column 3, line 40); wherein the coating is nylon (see column 4, line 12).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClanahan in view of Japan Publication (JP401305196A).

McClanahan discloses every element of the invention as discussed above except that the coating is tungsten disulfide and measures less than approximately 10 microns thick.

Japan Publication (JP401305196A) teaches the invention wherein the coating is tungsten disulfide to reduce friction.

It would have been obvious design choice to one having ordinary skill in the art at the time the invention was made to modify the invention of McClanahan by applying a very thin layer of tungsten disulfide as taught by Japan Publication (JP401305196A) on the external spline of McClanahan in order to reduce friction such that telescopic movement between the first and second shafts of McClanahan is more sufficient to prevent possibility of damage between the first and second shaft.

8. Claims 7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (U.S. 2,163,981) in view of McClanahan.

Lawrence discloses a suspension system for a vehicle having a wheel and a power distribution device (6) with the following: a biasing device (34) to support the vehicle on the wheel and to absorb road imperfections; a shaft (8) to transfer torque from the power distribution device (6) to the wheel; the shaft including a first member (12) having internal splines; a second member (13) having external splines engagable with the internal splines to allow telescopic movement between the first member and the

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second member and to transfer torque between the first member and the second member; wherein the first and second member adapted to couple with the power distribution device and one of the first and second member is adapted to couple with the wheel, a first universal joint (10) coupling the shaft and the power distribution device (6), a second universal joint (11) coupling the shaft and the wheel.

Lawrence does not directly disclose a suspension of vehicle wherein the external splines having a coating to reduce friction during the telescopic movement; wherein the coating is nylon, or tungsten disulfide, and the external spline includes an isotropic surface finish.

McClanahan teaches a shaft to transfer torque in a vehicle with the following: a first member (14) having internal splines (26); a second member (12) having external splines (24) engagable with the internal splines (26) to allow telescopic movement between the first member (14) and the second member (12) and to transfer torque between the first member and the second member; the external splines (24) having a coating (30) to reduce friction during the telescopic movement; wherein the first member (14) and the second member (12) are made by steel (see column 3, line 40); wherein the coating is nylon (see column 4, line 12); wherein the external spline further includes an isotropic surface finish (after finishing coating the external spline 24 by nylon material, the surface finish of the external spline become smooth to reduce friction, therefore, smooth surface finish is considered to correspond with isotropic surface finish) in order to prevent the shaft from being damaged upon telescopic movement.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a suspension system of Lawrence by using McClanahan's teaching in order to in order to prevent the shaft from being damaged upon telescopic movement, and to sufficiently allow relative movement in the axial direction for shock absorption during normal vehicle operation and for energy absorption during a vehicle crash.

With respect to claims 10-11, it would have been obvious design choice for one having ordinary skill in the art at the time the invention was made to apply a very thin layer of tungsten disulfide on the external spline of McClanahan instead of Nylon in order to reduce friction such that telescopic movement between the first and second shafts, since it have been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure includes the following: Gee (U.S. 5,186,079); Groves et al (U.S. 3,367,142); Beckham et al (U.S. 4,552,544); Imao et al (U.S. 5,042,153) disclose a shaft transfer torque having a first and second shaft members, wherein the first shaft member having internal spline and the second shaft member having external spline, wherein the surface of external spline is coated.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan To whose telephone number is (703) 306-5951. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson, can be reached on (703) 308-2089. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-2571. Any inquiry of a general nature or relating to the status of this application or this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-1113.

To, T

August 10, 2003